

REMARKS

Applicant submits this Amendment After Final in reply to the final Office Action mailed January 31, 2005.

As an initial matter, Applicant would like to thank the Examiner for meeting with Applicant's representative on April 14, 2005. The matters discussed in the Examiner Interview are included in the following remarks.

By this Amendment After Final, Applicant proposes to amend independent claims 1, 22, 61, and 86, and add new claims 108-119 to further define the claimed invention. The originally filed specification, drawings, and claims fully support the subject matter of amended claims 1, 22, 61, and 86, and new claims 108-119. No new matter has been introduced.

Before this Amendment After Final, claims 1-39 and 61-107 were pending. After entry of this Amendment After Final, claims 1-39 and 61-119 will be pending. Claims 1, 22, 61, and 86 are independent claims.

On pages 2-3 of the Office Action, claims 1-4, 8-10, 14-19, 22-26, 31-34, 38, 39, 61-64, 68-70, 74-79, 82, 85-90, 95-98, and 102-104 were rejected under 35 U.S.C. § 102(b) as being anticipated by Mitsuru, or in the alternative, were rejected under 35 U.S.C. § 103(a) as being unpatentable over Mitsuru. Applicant respectfully traverses these rejections. For the Examiner's convenience, Applicant includes herewith a machine language translation of Mitsuru obtained from the website of the Japanese Patent Office. Applicant makes no assertion as to the accuracy of this translation.

Mitsuru does not disclose every aspect of the claimed invention as required by Section 102(b). For example, each of as-amended independent claims 1 and 22 recites

a device including, among other aspects, “wherein a proximal end of the distal assembly has a profile larger than a diameter of the channel of the endoscope.” Mitsuru does not disclose at least this aspect of the claimed invention either alone or in combination with the other aspects of each of claims 1 and 22.

Page 2 of the final Office Action asserts that forceps section 70 and the channel defined by light guide part 50 of Mitsuru correspond to the distal assembly and the channel of the endoscope, respectively, of the claimed invention. Even assuming *arguendo* that this is correct, Mitsuru does not disclose that “a proximal end of the distal assembly has a profile larger than a diameter of the channel of the endoscope.” Specifically, no portion of forceps section 70 that could be considered a “proximal end” has a profile larger than the channel defined by light guide part 50. Indeed, Mitsuru teaches against forceps section 70 having a proximal end with a profile larger than the channel defined by light guide part 50, as such a configuration would prevent the inner distal edge of light guide part 50 from closing cups 72a, 72b as forceps section 70 is moved proximally relative to light guide part 50, thus impermissibly rendering the prior art unsatisfactory for its intended purpose. See In Re Gordon, 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984). Accordingly, for at least these reasons, Applicant respectfully requests withdrawal of the Section 102(b) rejection of claims 1 and 22.

In another example, each of as-amended independent claims 61 and 86 recites a device including, among other aspects “wherein the endoscope includes an optic channel for viewing an operative site from a proximal end of the endoscope, the optic channel being stationary relative to the channel.” Mitsuru does not disclose at least this

aspect of the claimed invention either alone or in combination with the other aspects of each of claims 61 and 86.

Page 2 of the final Office Action asserts that light guide part 50 of Mitsuru corresponds to the endoscope of the claimed invention. Although Applicant continues to dispute that light guide part 50 is an endoscope for at least the reasons set forth on page 19 of the Amendment filed November 1, 2004, solely in the interests of expediting the prosecution of this application, Applicant has amended claims 61 and 86 to recite “wherein the endoscope includes an optic channel for viewing an operative site from a proximal end of the endoscope.” Light guide part 50 of Mitsuru does not include at least this feature. For example, light guide part 50 of Figures 1 and 2 includes optical fibers 54 that transmit light to illuminate the traveling direction of forceps 30. Fibers 54 are not for viewing an operative site. Instead, part 64 views the site through lens 22 at the distal end of wire 20. We also note that wire 20 moves relative to the channel of part 50. As other examples, the light guide parts shown in Figures 6 and 7 do not include any other channels. Thus, light guide part 50 does not include “an optic channel for viewing an operative site from a proximal end of the endoscope.”

Page 5 of the Office Action also refers to the combination of light guide part 50 and endoscope 80 of Mitsuru as allegedly corresponding to the endoscope of the claimed invention. Under this interpretation, presumably “an optic channel for viewing an operative site” would be associated with endoscope 80. Also under this interpretation, however, “the channel” of the claimed endoscope must correspond to the channel of light guide part 50, since there is no disclosure whatsoever in Mitsuru regarding the relative sizes of the forceps and a channel of endoscope 80 (other than

the forceps, of course, fitting within the channel). And, under this interpretation, therefore, Mitsuru does not disclose “the optic channel being stationary relative to the channel,” as light guide part 50 moves axially within endoscope 80. For example, Mitsuru discloses that because “the flexible tube part 10 is sent in until the flexible tube part 10 and the lightguide section 50 of forceps equipment are inserted in [] an insertion channel through the opening 82 of an endoscope 80 and the forceps section 30 arrives at a treatment part.” (Paragraph [0023] of the machine language translation of Mitsuru). Accordingly, for at least these reasons, Applicant respectfully requests withdrawal of the Section 102(b) rejection of claims 61 and 86.

On pages 3-4 of the final Office Action, dependent claims 5-7, 11-13, 27-30, 35-37, 65-67, 71-73, 91-94, and 99-101 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Mitsuru in view of U.S. Patent No. 6,066,102 to Townsend et al. (“Townsend”). Applicant respectfully traverses this rejection. As set forth above, Mitsuru does not disclose or suggest every aspect of independent claims 1, 22, 61, and 86. Townsend does not remedy the deficiencies of Mitsuru. Indeed, the rejection relies on Townsend only for its alleged disclosure relating to features of handles and elongate members in dependent claims. Applicant therefore respectfully requests withdrawal of the Section 103(a) rejection based on Mitsuru and Townsend.

On pages 4-5 of the final Office Action, dependent claims 20, 21, 80, 81, 83, 84, and 105-107 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Mitsuru in view of U.S. Patent No. 5,218,589 to Lichtman (“Lichtman”). Applicant respectfully traverses this rejection because Lichtman also does not remedy the aforementioned deficiencies of Mitsuru. Accordingly, for at least these reasons,

Applicant respectfully requests withdrawal of the Section 103(a) rejection based on Mitsuru and Lichtman.

Applicant further submits that claims 2-21, 23-39, 62-85, and 87-119 depend either directly or indirectly from one of independent claims 1, 22, 61, and 86 and are therefore allowable for at least the same reasons that their respective independent claims are allowable. In addition, at least some of the dependent claims recite unique combinations that are neither taught nor suggested by the cited references and therefore at least some also are separately patentable.

Applicant respectfully requests that this Amendment After Final under 37 C.F.R. § 1.116 be entered by the Examiner, placing claims 1-39 and 61-119 in condition for allowance. Applicant submits that the proposed amendments of claims 1, 22, 61, and 86 do not necessitate the undertaking of any additional search of the art by the Examiner. Therefore, this Amendment After Final should allow for immediate action by the Examiner.

Furthermore, Applicant respectfully points out that the final Office Action by the Examiner presented some new arguments as to the application of the art against Applicant's invention. It is respectfully submitted that the entering of the Amendment After Final would allow the Applicant to reply to the final rejections and place the application in condition for allowance.

Finally, Applicant submits that the entry of the Amendment After Final would place the application in better form for appeal, should the Examiner dispute the patentability of the pending claims.

The final Office Action contains characterizations of the claims and the related art with which Applicant does not necessarily agree. Unless expressly noted otherwise, Applicant declines to subscribe to any statement or characterization in the final Office Action.

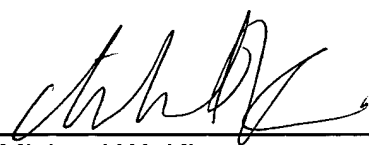
In discussing the specification, claims, and drawings in this Amendment After Final, it is to be understood that Applicant is in no way intending to limit the scope of the claims to any exemplary embodiments described in the specification and/or shown in the drawings. Rather, Applicant is entitled to have the claims interpreted broadly, to the maximum extent permitted by statute, regulation, and applicable case law.

Please grant any extensions of time required to enter this Amendment After Final and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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Dated: April 27, 2005

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Attachment: Machine language translation of Mitsuru obtained from the website of the Japanese Patent Office.



DETAILED DESCRIPTION [Detailed Description of the Invention]

[0001]

[Industrial Application] This invention is inserted in the forceps channel of an endoscope, and relates to the forceps equipment for endoscopes used in order to extract the biopsy organization in a living body cavity.

[0002]

[Description of the Prior Art] Generally, extraction of the tissue cell in an endoscopic living body cavity or excision of the affected part is performed through the forceps insertion channel prepared in the endoscope.

[0003] The forceps equipment which performs such treatment usually has the forceps section which extracts a tissue cell, the actuation wire part to connect with this forceps section and for remote operation perform the switching action of said forceps section, and the flexible tube part in which this actuation wire part is inserted.

[0004] And in such forceps equipment, the tip of a flexible tube part is made to insert in to a treatment part, the forceps section at a tip is opened and closed and the organization of a treatment part is extracted by making an actuation wire part move by actuation of a hand.

[0005]

[Problem(s) to be Solved by the Invention] Using conventional forceps equipment, when performing organization extraction in capillaries, such as a pancreatic duct, first, fiberscope is inserted into the insertion channel of an endoscope and a treatment part is checked. Then, only the die length which inserts forceps equipment instead of fiberscope, for example, is equivalent to the penetration length of fiberscope makes forceps equipment advance, and the organization of the field considered to be a treatment part is extracted.

[0006] Treatment will be performed without according to such an approach, checking whether the cup of forceps equipment has arrived at the treatment part correctly, since insertion of forceps equipment is based on blindness actuation so to speak even if it is able to check a treatment part correctly by fiberscope. Therefore, a different part from a treatment part will be extracted, or a wide range part will be extracted [rather than] including a treatment part, and there is a problem of being hard to take exact measures.

[0007] This invention is made under such a background, and the place made into the purpose is by giving a scope function to forceps equipment to offer the forceps equipment for endoscopes which can perform exact treatment, actually observing a treatment part.

[0008]

[Means for Solving the Problem] The flexible tube part which can insert the forceps equipment for endoscopes of this invention in the channel for insertion of an endoscope, The actuation wire part which is inserted in this flexible tube part possible [an attitude], and is constituted with an image fiber, The forceps section which is prepared in the tip side of this actuation wire part, and has the treatment member which can be opened and closed, The wire control unit which said actuation wire part is made to move, and opens and closes said forceps section by remote operation, It is characterized by including the objective lens arranged in the location which is established in the outside of said flexible tube part, and is fixed at the tip of an image fiber of the lightguide section which transmits the illumination light ahead, and said actuation wire part, and can condense at the time of actuation of the treatment member of said forceps section.

[0009]

[Function] In this invention, an image fiber constitutes an actuation wire part and the objective lens for condensing is prepared at the tip of this image fiber. Therefore, if the forceps section front is illuminated through the lightguide section, the image ahead of the point of forceps equipment will be acquired by collecting the scattered lights with an objective lens and transmitting them through an image fiber. Therefore, an actuation wire part can be operated, checking a treatment part with an image, therefore extraction or removal of a treatment part is correctly possible.

[0010] Moreover, in this invention, it can use by constituting an actuation wire part from an image fiber suitable for the forceps equipment for capillaries with which it can have the function of an actuation wire, and the function of an image fiber, and the diameter of forceps equipment can be made into the almost same level as usual, therefore an overall diameter is set to about 2mm.

[0011]

[Example]

The partial flat-surface sectional view in which 1st example drawing 1 shows the important section of the 1st example of this invention, and drawing 2 are the partial side-face sectional views of the equipment shown in drawing 1 .

[0012] The tubed connection section 40 by which the forceps equipment of this example was fixed at the tip of the flexible tube part 10 and this flexible-tube section 10, The actuation wire part 20 inserted in said flexible tube part list at the tubed connection section 40, It has the forceps section 30 fixed to the halfway section of said actuation wire part 20 through the link fixed part 32, and the lightguide section 50 of the shape of a tube prepared in the outside of said flexible tube part 10 and the tubed connection section 40.

[0013] Said flexible tube part 10 consists of metal close-winding coils, and has the wire insertion section 12 inside.

[0014] Said actuation wire part 20 is constituted by the image fiber. This actuation wire part 20 consists of fibers which have sufficient mechanical strength to operate the forceps section 30 by slide migration like the conventional actuation wire, and have flexibility in extent in which insertion into the coelome bent thinly is possible. As such an image fiber, the quartz-glass system optical fiber of an a large number book can be inserted in in a jacket, and the fiber of structure which coated the periphery of this jacket with plastics further can be used, for example.

[0015] Moreover, in said link fixed part 32, the actuation wire part 20 is crooked so that it can curve in the method of outside [medial axis / of said flexible tube part 10], and further, the point is arranged so that it may be suitable in the same direction as the medial axis of said forceps section 30. The objective lenses 22, such as the SELFOC lens, are being fixed at the tip of the actuation wire part 20. As the fixed approach of this objective lens 22, the sleeve 24 over the point of an objective lens 22 and the actuation wire part 20 is formed, and the method of pasting up mutual [these] with adhesives, such as an epoxy resin, is mentioned, for example so that it may illustrate to drawing 1 .

[0016] The 1st hold section 44 by which the forceps section 30 is mostly installed in a nothing and tip side for a whole configuration in the shape of a cylinder, and the 2nd hold section 46 in which the point of said objective lens 22 and the actuation wire part 20 is held are formed so that said tubed connection section 40 may be expanded to drawing 3 and drawing 4 and it may be shown. Said 1st hold section 44 consists of boards 42a and 42b of the pair which counters. Hole 42c for inserting a pin in these boards 42a and 42b, respectively is formed. Said 2nd hold section 46 is the field which adjoined said 1st hold section 44 and was divided by said board 42b.

[0017] Said forceps section 30 consists of the cups 36a and 36b of the pair as a treatment member for extracting an organization, links 34a and 34b of the pair connected with these cups 36a and 36b pivotable through Pins 38b and 38c, these links 34a and 34b, and stationary-plate 32a fixed through pin 38d. As for this stationary-plate 32a, the other end is constituted by one with the pewter etc. in said link fixed part 32. And said cups 36a and 36b are being fixed to the boards 42a and 42b of said tubed connection section 40 by pin 38a pivotable in the halfway section.

[0018] Said lightguide section 50 consists of a barrel 52 made of synthetic resin which has flexibility, and two or more optical fibers 54 laid underground in this barrel 52, as shown in drawing 1 and drawing 2 . And the lightguide section 50 does not check actuation of said forceps section 30, but the location of the point is set up so that the outgoing radiation of sufficient illumination light can moreover be carried out towards the forceps section 30.

[0019] Next, the configuration by the side of the control unit of the forceps equipment of this example is explained. The wire control unit 60 of forceps equipment and the configuration of an endoscope 80 are roughly shown in drawing 5 .

[0020] It connects with the actuation wire part 20 inserted in in the flexible tube part 10, and the wire control unit 60 of forceps equipment has the slider 62 for making

this actuation wire part 20 move, and the ocular which is not illustrated, and has the eye contacting part 64 which carries out image formation of the light transmitted by the actuation wire part 20, and the light source 66 for irradiating light at the lightguide section 50. In addition, 68 are a ring for fixing the wire control unit 60 with a finger among drawing 5 .

[0021] The endoscope 80 has opening 82, the eye contacting part 84, and the light source 86 in which the flexible tube part 10 of forceps equipment is inserted.

[0022] Next, an operation of this example is explained.

[0023] In this equipment, the flexible tube part 10 is sent in until the flexible tube part 10 and the lightguide section 50 of forceps equipment are inserted in in an insertion channel through the opening 82 of an endoscope 80 and the forceps section 30 arrives at a treatment part. At this time, the light from the light source section 66 is transmitted with the optical fiber 54 of the lightguide section 50, and the travelling direction of the forceps section 30 is illuminated. Moreover, it is condensed with an objective lens 22 and image formation of the scattered light by this lighting is carried out by the eye contacting part 64 through the actuation wire part 20. Therefore, an operator can advance the flexible tube part 10, observing the inside of a coelome, and can take certainly the organization or the affected part which should be made to open and close the cups 36a and 36b of the forceps section 30 by making the slider 62 of the wire control unit 60 move after checking the location of a treatment part correctly, and should be extracted.

[0024] 2nd example drawing 6 (A) thru/or (C) are the explanatory views showing other examples of this invention. In this example, although the fundamental configuration is the same as that of said 1st example almost, it differs in that a link mechanism is not used as a driving means of the forceps section 70. In addition, the same sign is given to the part same on said 1st example and functional target, and the detailed explanation is omitted.

[0025] In this example, the forceps section 70 consists of cups 72a and 72b of a pair, and arms 74a and 74b of the pair which follows these cups and by which the end face was fixed to the forceps fixed part 76.

[0026] In the condition of not applying external force, this forceps section 70 is in the open condition according to the elastic force of Arms 74a and 74b, as shown in drawing 6 (B). Therefore, by drawing the actuation wire part 20 and retreating the forceps section 70, as shown in drawing 6 R> 6 (A), Cups 72a and 72b will be in a closed state by contact of the tubed connection section 40. And Cups 72a and 72b will be in an open condition as [show / in drawing 6 (B)] by advancing the actuation wire part 20. Since the front will be from the tip of the actuation wire part 20 in an extended state in visual field in the state of open [this], it can prepare at the tip of the actuation wire part 20, without making an objective lens 22 bias like said 1st example in this example. That is, after the tip and objective lens 22 of the actuation wire part 20 have

connected in the tubed forceps fixed part 76, hold immobilization is carried out, so that it may expand to drawing 6 (C) and may be shown.

[0027] Since it is not necessary to install in the condition of having made the actuation wire part 20 constituted with an image fiber in order to form an objective lens 22 crooked according to the equipment of this example, the path of the tubed connection section 40 can be made smaller.

[0028] Drawing 7 (A) and (B) are the explanatory views showing other modifications of this example. In this example, it differs from the equipment shown in drawing 6 with the point that cup 72c of the forceps section 70 consists of simple substances. Also in this equipment, cup 72c is constituted so that it may open and close with arm 72d elasticity, and it will be in an open condition as shown in drawing 7 (B) by advancing the actuation wire part 20 from the closed state shown in drawing 7 (A). In this open condition, since the front of the actuation wire part 20 as an image fiber spreads in visual field, an objective lens 22 can be fixed and formed at the tip of the actuation wire part 20 like the equipment shown in drawing 6 .

[0029] As mentioned above, although the suitable example of this invention was explained, this invention is not limited to this and various alterations are possible for it within the limits of the summary of invention. For example, the image fiber or the lightguide section which constitutes an actuation wire part can take other configurations, as long as the function is attained. Moreover, the configuration or driving means of the forceps section are not limited to said example, but various kinds of design changes are possible for them.

[0030]

[Effect of the Invention] According to this invention, the forceps equipment for endoscopes which can perform exact treatment can be offered by giving a scope function to the actuation wire part of forceps equipment, actually observing a treatment part.